CRIMINALITY INDICES

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In traditional court statistics for measuring criminality only rates had been used beside absolute figures, thus dynamic rates for analysing time series and distribution rates for structural analysis and, only exceptionally, some crude and net criminality rates. Although these indices are also indispensable in the many-sided study of criminality, still they do not express the qualitative elements, they do not indicate the effects of changes in law or those of modifications in regulation, as well as the alterations of the qualitative structure of criminality either. The weight of the crime is not asserted either in the number of committed crimes known or in the number of perpetrators or in the number of validly convicted. If the complex analysis of criminality is desired, beside the above indices also such ones are needed which cover the individual crimes weighted with their social danger. This need arose both in Hungarian and in foreign criminal research, and led to the acceptance of averages and indices in analysing criminality.

In the foreign literature especially the index of Selling-Wolfgang aroused the professional interest and debateresp.. The essence of the method is the scoring of the relative weights of the individual crimes on the basis of certain objective factors (the manner of committing, use of weapons, damage caused, etc.) and summing the scores to rank them. In the scoring the moral value-judgement of the society manifests itself: it was performed by university students, police officers and professional judges, among others.[1] This method was essentially an interview covering not too great number of crimes.

On the basis of the Sellin-Wolfgang method researches were performed in several countries in order to measure the weight of criminality, trying also to make comparisions among various countries. Several authors deal with the problem of usability of the method, too.[2] G. N. G. Rose criticizes the Sellin-Wolfgang indices because the groups used in the scoring had been rather heterogeneous, and thus the classification and the construction of the indices are unstable. In his opinion it is very important that criminologists using these indices should be aware of the faults or insufficiences of the research procedure and method applied.[3]

In his recent study also Sz. Sz. Osztroumov speaks on the necessity of criminality indices, revising hereby his earlier view on the applicability of index method and, in general, methods of mathematics and cibernetics. He deams necessary to introduce such indices which enable to determine the dynamics of criminality with respect, of the degree of the social danger of the individual crimes.[4]

In Hungarian research criminality indices respectively aggregates created by weighting the crimes have been applied in two directions:

1. in complex measuring the structure of criminality;
2. in studying the practice of imposing punishment.

As for myself having begun to deal with criminality indices[5] more than ten years ago started from the consideration that the essence of the index method is that it does not measure only the complex effect of the factors influencing the pattern of the phenomena but it also enables to separate the effects of the various factors and to analyse them individually – similarly to the method of standardization. Thus, the application of the index method in court statistics – by constructing indicators measuring both complexly and separatedly the changes in judicial practice – significantly promotes the study of criminality as in the criminality indices also the weights of the crimes are manifested.

In order to indicate criminality I have used – on the analogy of economic indices –

I_b – criminality index

measuring simultaneously the volume of criminality and the changes of judicial practice;

I_v – volume index

measuring the volume of criminality, and

I_p – index of penal policy

reflecting the development of judicial policy and practice resp..

Basis problem in the course of defining these three indices is to determine the weights indicating the social danger of the various crimes.

The construction of the system of weights

As it is evident from the above said, the starting point of the index calculation is the determination of a system of weights for each crime. The index is suitable for measuring total criminality only if the individual weights well characterize the individual crimes and they express the measure of the damage and injury resp. caused by them, that is the weights are proportionate to the social danger of the crime committed.

The shaping of a system of weight can be made

a) theoretically or
b) empirically.

In my opinion both methods should be based on the valid Penal Code, as it does determine within the given social circumstances, in the given period the frames of penalizing the individual crimes characterizing thus the scope of their social danger. According to my view, a statistician must not undertake to form a system of scoring independent from juristic policy and penal practice, as this would mean the formation of an independent penal policy and it would not registrate the existing legally regulated situation.

Developing a system of weights theoretically, a medium value should be determined on the basis of the penalties prescribed by the items of the Penal Code – which does not necessarily correspond to the arithmetical mean of the upper and lower limits of the penal item – and this medium value is considered as the weight of the crime.

The main difficulty of the application of this method is that the law does not indicate only one, relatively narrow interval as the frame of the punishment for a crime, but taking into consideration the modifying circumstances several intervals – overlapping each other – are ordered, too.

If the official criminal statistics contained detailed data on the individual items of the paragraphs of the Penal Code, or a data collection was performed not only for crimes but for their modified, qualified and privileged cases resp., too. the theoretical estimation of the medium value could be realized.

The empirical way of constructing the system of weights is based on the sentences of the courts, thus it is built on the official court-statistics. As the court judges the social danger of the crime in the course of making a decision on the sentence, and establishes the legal consequences proportionate to it – according to my opinion – the sentences of the courts offer reliable basis for weighting the crimes – at least in a court-statistical index system.

The system of weights based on the court statistics has been worked out on the basis of statistical data of the courts for the years 1969 and 1971. These years had been chosen with the consideration that the so-called new "penal novel" became valid on the 1st January 1972 (Legal order No 28 of 1971), and it would not be realistic to determine weights on the basis of a law recently modified when calculating indices for an earlier time series.

Court statistics include the following groups of types of penalty as principal penalty – in accordance with the valid Penal Code:

Penalty of death
Imprisonment – executable and suspended
Correctional-educational labour and

Fine as main penalty – within it: executable and suspended, and also by further distinction by the way whether the fine had been imposed at a hearing, or without a hearing in the from of a judge's penal order. For the three later type of penalty statistics uses class-intervals for the quantity of the penalty.

When establishing a system of weights a uniform unit of measurement should be chosen in which to express the weight of all crimes and all types of penalty. It is obvious that for imprisonment and correctional-educational labour time span should be measured, while for fine the Forint is the unit, but in principal, the fitting of death-penalty into the system of weights means an unsolvable problem. As among penalties inflicted imprisonment represents the highest rate and significance, I applied the span of imprisonment as the basis of the system of weights – expressed in months. In my earlier investigations also the length of imprisonment has been consdidered as the weight of the crime,[6] however, in my recent studies such models are applied with the help of which also other types of crimes can be built into the indices.

Court statistics distinguish 12 classintervals for the length of imprisonment. Replacing these class-intervals by an empirical mean (that does not equal to the mechanically calculated medium value of the intervals, but it is significantly lower in all categories), such "elementary weights" are gained which characterize the weight of the length of the penalty.

The 12 class-intervals used in official court-statistics and the "elementary weights" linked to them by me are the following:

Length of imprisonment	Elementary weight (month)
from 30 days up to 3 months	1
3 – 6 months	4
6 – 12 months	8
1 year	12
1 – 2 years	16
2 years	24
2 – 3 years	28
3 – 5 years	44
5 – 8 years	72
8 – 12 years	112
12 – 15 years	156
more than 15 years	180

Weighting the "elementary weights" with the frequency of occurance for each crime we are calculating a weighted mathematical mean and get the weight of the crime. That means, the number of convicts who were sentenced to the i-th category of penalty – for the sake of simplicity those whose penalty was executable within the category i – are denoted with the symbol a_i. Penalties suspended will be considered later. Let the "elementary weight" of the i-th type of penalty – defined above – denoted

with t_i; then the weight of the crime can be calculated with the weighted mathematical mean:

$$\frac{\Sigma a_i t_i}{\Sigma a_i}$$

where the summation includes all the 12 categories of the span of imprisonment.

No distinction has been made in determining the weight of the imprisonment by the type of the execution of imprisonment, i.e. whether it should be accomplished in a

penal servitude,
solitary confinement,
prison, or in a
gail,

as the calculations cover the period before 1971, when the legal order order No 28 of 1971 was not valid yet.

For the length of correctional-educational labour statistics distinguish four categories. As these spans cannot be regarded equal to the spans of imprisonment, a key of conversion was to be determined, in order to express the span of correctional-educational labour in the unit of the span of imprisonment. The determination of this key was made according to the Penal Code § 44 (2) saying that "at commuting the correctional-educational labour to imprisonment, two days of the former equal to one day of imprisonment." Accepting the considerations of the law, the four class-intervals of the correctional-educational labour and their "elementary weights" are the following:

Span of correctional-educational labour	Elementary weight (month)
3 – 6 months	2
6 – 12 months	4
1 year – up to 1 year 6 months	7
1 year 6 months-up to 2 years	10

Statistics use two categories for fines: Ft 100 – 1000, and one for Ft more than 1000. The commuting of fine to imprisonment is regulated by the law [§ 47 (2)] as follows: "instead of a fine of Ft 25 – 200 one day of imprisonment is to be calculated." Imprisonment replacing fine cannot be less than one day and more than one year: accordingly, the category from Ft 100 to 1000 can be commuted to 1 – 40 days, the category above Ft 1000 – being the upper limit of the fine Ft 50 000 – into 5 days up to one year of imprisonment. Therefore the categories of fine and their "elementary weights" are the following:

Fine (Ft)	Elementary weight (month)
from Ft 100 up to 1000	1
more than Ft 1000	2

The consideration of the suspended sentences raised a further problem. It is obvious that the same weight cannot be used as the "elementary weight" of the executable penalty for the same class-intervals – as in significant part of the cases when penalties will not be executed. Therefore, the number of suspensions should be weighted with a value indicating the share of executed penalties from among the suspended ones. However, the official court-statistics does not contain any data concerning the number of those whose penalty of the given year became executable in the following years; only such data are recorded which show the number of penalties from earlier years which became executable in the given year – disregarding the year of the conviction: thus this values have been used for measuring the frequency of relapse of the suspended.

As court statistics does not report the number os suspended recidivists by the type of penalty, only summarized, further compromises were to be made in determining the rate of relapses, namely an average rate should be applied for all penalties, supposing that the rate of recidivists does not depend on the penalty.

Let us denote with b_i the number of convicts in a given year, for whom the penalty of type i-th was sentenced, suspended, and with f the number of these convicts whose penalty was suspended but became executable in the given year, thus the rate of relapse of the suspended will be

$$\beta = \frac{f}{\sum_i b_i}$$

If this β value is regarded as the weight of the suspension, i. e. a type of penalty with the weight t_i in its suspended version would have the weight of βt_i, that would mean that only executable penalties were taken into consideration and no suspended but not executed penalties were taken into account at all. Anyway, penalties not executed but suspended are also penalties: the crime committed has also a weight, a danger for the society, even if the act itself has a small weight, or the aim of the punishment can be reached without the execution of the punishment – due to the personal characteristics of the perpatrator. Taking all these into consideration, in the index the suspended penalties have been weighted by 2β. As β is generally about a value of 10 – 15 percent, and only in a few cases of crimes against family, youth and sexual moral, resp. some against personal property does it exceed 30 percent, I deem 2β to be a realistic value for the suspension.

One more complimentary estimation has to be made, namely statistics does not distinguish fine as principal penalty by the sum into cate-

gories. Here the hypothesis was applied, that the share of penalties suspended is equal in the two categories – under and above FT 1000 – thus the number of the suspended in the individual categories has been determined by a proportionate division.

On the above considerations the categories of the court statistics, the empirical averages of the categories – serving as "elementary weights" – as well as the symbols representing the number of the convicts belonging to the individual categories are compiled in the following table:

Table 1.

Type and measure of the penalty	Elementary weight t_i	Number of convicts	
		executable a_i	suspended b_i
Death penalty	300	a_1	–
Imprisonment:			
30 dys-up to 3 months	1	a_2	b_2
3 – 6 months	4	a_3	b_3
6 – 12 months	8	a_4	b_4
1 year	12	a_5	b_5
1 – 2 years	16	a_6	b_6
2 years	24	a_7	b_7
2 – 3 yaars	28	a_8	–
3 – 5 years	44	a_9	–
6 – 8 years	72	a_{10}	–
8 – 12 years	122	a_{11}	–
12 – 15 years	156	a_{12}	–
More than 15 years	180	a_{13}	–
Correctional educational labour			
3 – 6 months	2	a_{14}	–
6 – 12 months	4	a_{15}	–
1 year up to 1 year and 6 months	7	a_{16}	–
1 year and 6 months up to 2 years	10	a_{17}	–
Fine			
with hearing			
Ft 100 – 1000	1	a_{18}	b_{18}
more than Ft 1000	2	a_{19}	b_{19}
without hearing			
Ft 100 – 1000	1	a_{20}	b_{20}
more than Ft · 1000	2	a_{21}	b_{21}

As the weight of the individual crimes can be considered as the mathematical mean of the above elementary weights weighted with the frequency of occurance, depending on whether the summarizing refers only to the imprisonment of it is extended to correctional-educational labour, or also to the various cases of fine as main penalty, the following four types of weights can be ordered to each crime:

$$\tau_{a,\ 13} = \frac{\sum_{i=1}^{13} (a_i + 2\beta b_i)\, t_i}{\sum_{i=1}^{13} (a_i + b_i)}$$

if solely imprisonment is considered

$$\tau_{a,\ 17}=\frac{\sum_{i=1}^{17}(a_i+2\beta b_i)\,t_i}{\sum_{i=1}^{17}(a_i+b_i)}$$

if also correctional-educational labour is taken into account

$$\tau_{a,\ 19}=\frac{\sum_{i=1}^{19}(a_i+2\beta b_i)\,t_i}{\sum_{i=1}^{19}(a_i+b_i)}$$

if fine as main penalty sentenced at a hearing is also taken into account

$$\tau_{a,\ 21}=\frac{\sum_{i=1}^{21}(a_i+2\beta b_i)\,t_i}{\sum_{i=1}^{21}(a_i+b_i)}$$

if all types of main penalty are taken into account.

The calculation of the above weights has been performe exclusively by the main penalties disregarding the supplementary punishments.

Some experiments have been made in order to take into account the supplementary punishments, but due to the nature of the statistical information system, still more estimations have been to be applied than in the earlier. In the following I shall indicate with c the number of cases when no supplementary punishment were imposed. Thus, the number of cases when any supplementary punishment were imposed can be calculated, namely

$$\sum_{i=1}^{21}(a_i+b_i)-c$$

but their distribution by the type of the supplementary penalty cannot be determined in this way. As the types of penalty are rather heterogeneous, their significance and weight depends not only on the type of penalty but also on the personality of the convict, therefore its estimation could be done only on the basis of a sample survey. In lack of this, for the sake of simpleness, all supplementary punishments have been taken into account by increasing the weight of the main penalty by 10 percent. Thus the above four types of weights modified by the supplementary punishment will be:

$$\tau_b=\frac{\sum_{i}(a_i+2\beta b_i)\,t_i}{\sum_{i}(a_i+b_i)}\left(1+\frac{\sum_{i}(a_i+b_i)-c}{10\sum_{i}(a_i+b_i)}\right)$$

where

$1\leq i\leq 13$ if solely imprisonment is considered
$1\leq i\leq 17$ if also correctional-educational labour is taken into account
$1\leq i\leq 19$ if fine as main penalty sentenced at a hearing is also taken into account
$1\leq i\leq 21$ if all types of main penalty are taken into account.

Finally, I tried to take into account the previous convictions as aggravating circumstance, too. In the court statistics the number of those validly sentenced earlier can be found for each crime – let us denote it with d – and the number of those with previous convictions and not rehabilitated – let it be e. Taking previous convictions into account with 5 percent, the lack of rehabilitation 10 percent aggravating circumstance – as d includes e, too – the factor of relapse will be

$$1+\frac{d+e}{20\sum_{i}(a_i+b_i)}$$

In this correction factor the persons rehabilitated are represented by once 5 percent, and those not rehabilitated by twice 5 percent, i. e. 10 percent. Taking this factor into account, the weight of the crime linked to the four types of limit of summarization will be

$$\tau_c=\frac{\sum_{i}(a_i+2\beta b_i)\,t_i}{\sum_{i}(a_i+b_i)}\left(1+\frac{\sum_{i}(a_i+b_i)-c}{10\sum_{i}(a_i+b_i)}\right)\left(1+\frac{d+e}{20\sum_{i}(a_i+b_i)}\right)$$

where

$1\leqq i\leqq 13$ if solely imprisonment is considered
$1\leqq i\leqq 17$ if also correctional-educational labour is taken into account
$1\leqq i\leqq 19$ if fine as main penalty sentenced at a hearing is also taken into account
$1\leqq i\leqq 21$ if all types of main penalty are taken into account.

By considering the 3-kinds of a τ model (including more and more factors) and the four types of limitation of the summarization, 12 weights for each crime – 24 values in two calendar years – could be calculated. Table 2. contains the minimal, the maximal and the median value of the 12 τ values.

Dispersion of the weights

The well-grounded question has been raised whether the numerical differences between the values calculated in 12 different ways are significant, or the differences are rather of theoretical nature. For studying this problem the deviation of the series of weights – each containing 12 members – to its median (standard deviation) has been calculated – denoted as usually with σ, as well the rate of these values related to the median in percentage – denoted with σ' as a relative index of the deviation.

On the basis of the 91 items of the Nomenclature of crimes for the data of two years 163 series of weights have been calculated (not all of the crimes occurred in both years!).

Table 2

	Specification of the crime		Min τ	Max τ	Med τ	σ	σ′
Crimes against the state	Conspiracy, sedition	1969	36,18	40,37	39,47	1,97	4,99
	Btk 116–122. §	1971	8,00	8,40	8,40	0,23	2,75
	Sabotage, destruction, assassination	1969	–	–	–	–	–
	Btk 124–126. §	1971	–	–	–	–	–
	Incitement	1969	9,79	11,01	10,41	0,45	4,35
	Btk 127–128. §	1971	11,97	13,60	12,93	0,67	5,21
	Treason, aiding the enemy, espionage	1969	–	–	–	–	–
	Btk 129–131. §	1971	50,00	57,75	55,00	3,29	5,99
	Other crimes against the state	1969	–	–	–	–	–
	Btk 132–133. §	1971	8,00	8,80	8,80	0,46	5,25
	Crimes against peace and humanity	1969	–	–	–	–	–
	Btk 135–141. §	1971	44,86	49,34	49,34	2,59	5,25
Crimes against state administration and administration of justice	Demanding or accepting an unlawful adventage	1969	7,41	8,90	7,98	0,54	6,73
	Btk 149–150. §	1971	11,38	13,69	12,54	0,90	7,17
	Bribery	1969	1,46	1,58	1,50	0,03	2,00
	Btk 151–152. §	1971	2,30	2,83	2,58	0,18	6,97
	Trading in influence	1969	13,53	15,23	14,26	0,55	3,88
	Btk 153. §	1971	18,24	20,18	19,48	0,82	4,22
	Other crimes in office	1969	6,20	9,33	6,91	1,32	19,10
	Btk 144–148. §	1971	7,14	9,06	7,22	0,84	11,63
	Violence against an official person	1969	5,42	6,28	5,78	0,25	4,27
	Btk 155. §	1971	6,59	7,49	7,03	0,26	3,69
	Insulting an authority or official person	1969	1,83	2,35	2,04	0,17	8,33
	Btk 158. §	1971	2,15	2,62	2,40	0,17	7,08
	Breach of secrecy in respect of state secrets and secrets of service	1969	28,00	33,88	30,80	2,40	7,80
	Btk 160–162. §	1971	–	–	–	–	–
	Crimes against liability for national defence	1969	–	–	–	–	–
	Btk 164–171. §	1971	–	–	–	–	–
	False accusation misleading an authority	1969	3,65	4,85	4,31	0,38	8,81
	Btk 172–175. §	1971	3,99	4,80	4,41	0,23	5,25

	Specification of the crime		Min τ	Max τ	Med τ	σ	σ′
Crimes against state administration and administration of justice	False testimony subornation of witnesses, concealment of an exculpating circumstance	1969	2,48	2,77	2,64	0,09	3,35
	Btk 176 – 179, 182 – 183. §	1971	2,21	2,39	2,31	0,06	2,59
	Abetment	1969	1,34	1,70	1,48	0,10	6,75
	Btk 184. §	1971	1,67	2,16	1,83	0,17	9,28
	Barrister's crime	1969	–	–	–	–	–
	Btk 187. §	1971	–	–	–	–	–
	Other,	1969	2,04	4,87	3,53	1,05	29,74
	Btk 143, 185 – 186, 188 – 189. §	1971	3,80	8,16	6,11	4,02	32,06
Crimes against public security and public order	Causing public danger, disturbing the operation of works of public interest	1969	8,00	9,58	8,61	0,48	5,60
	Btk 190 – 191. §	1971	5,44	6,83	6,01	0,52	8,65
	Crime against the safety of traffic	1969	2,76	2,83	2,81	0,02	0,71
	Btk 192 – 193. §	1971	2,70	2,87	2,81	0,05	1,78
	Driving a vehicle when drunk	1969	1,52	2,17	1,91	0,19	9,94
	Btk 194. §	1971	1,16	1,95	1,88	0,28	14,89
	Misuse of explosives, blasting agents, fire arms or ammunition	1969	3,37	3,62	3,47	0,08	2,18
	Btk 195. §	1971	4,06	4,33	4,15	0,08	2,00
	Unauthorized crossing of the frontier, smuggling people	1969	8,36	9,27	8,68	0,29	3,35
	Btk 203 – 204, 206. §	1971	10,01	11,26	10,53	0,38	3,61
	Refusal to return to homeland	1969	17,98	19,37	19,18	0,67	3,49
	Btk 205. §	1971	22,22	24,25	24,19	1,13	4,68
	Incorrigible unwillingness to work	1969	9,39	10,82	9,92	0,52	5,25
	Btk 214. §	1971	9,42	10,83	10,01	0,50	5,01
	Offence against the community, spreading of disquieting rumours	1969	1,50	1,91	1,84	0,16	8,69
	Btk 217 – 218. §	1971	1,74	2,29	2,17	0,21	9,67
	Hooliganism	1969	4,15	4,86	4,40	0,21	4,77
	Btk 219. §	1971	5,05	5,80	5,36	0,22	4,01
	Forging of official documents	1969	1,81	2,85	2,43	0,36	14,81
	Btk 220 – 221. §	1971	1,74	2,82	2,38	0,38	15,90
	Forging of private documents	1969	0,67	1,23	1,15	0,23	20,00
	Btk 222. §	1971	0,96	1,84	1,51	0,28	18,54
	Misuse of a document	1969	2,53	4,10	3,40	0,61	17,94
	Btk 223. §	1971	2,70	12,09	6,47	10,68	165,06

	Specification of the crime		Min r	Max r	Med r	σ	σ′
Crimes againts public security and public order	Other crimes against public security and public order	1969	3,13	4,65	4,01	0,49	12,21
	Btk 196–202, 206, 207–213, 215–216. §	1971	4,67	5,70	5,16	0,31	5,99
Crimes against the perople's economy	Infringement of duties in connection with the economy	1969	–	1,54	0,75	0,76	100,85
	Btk 224. §	1971	7,20	32,20	17,78	11,12	62,54
	Wasteful husbandry	1969	–	–	–	–	–
	Btk 225. §	1971	–	–	–	–	–
	Misleading the organs of the people's economy, crime infringing discipline in investments and finance	1969	0,20	0,87	0,46	0,29	63,04
	Btk 226–229. §	1971	–	2,10	1,85	0,91	48,92
	Crimes relating to the quality of industrial products	1969	1,00	1,05	1,00	0,03	2,89
	Btk 230–234. §	1971	–	–	–	–	–
	Bribery	1969	3,82	5,74	4,62	0,78	16,88
	Btk 235. §	1971	4,47	7,77	6,30	1,23	19,52
	Speculation, profiteering	1969	2,37	2,78	2,61	0,13	4,98
	Btk 236, 238. §	1971	3,81	4,74	4,26	0,33	7,75
	Crimes relating to public supplies	1969	1,29	1,38	1,33	0,02	1,50
	Btk 240. §	1971	–	–	–	–	–
	Money forging	1969	–	–	–	–	–
	Btk 241–243. §	1971	8,00	8,40	8,40	0,23	2,75
	Crimes violating foreign exchange control	1969	1,11	1,25	1,22	0,05	4,09
	Btk 247. §	1971	1,71	3,69	2,83	0,80	28,26
	Tax fraud	1969	0,04	1,43	0,81	0,56	69,13
	Btk 248. §	1971	2,24	4,28	3,64	0,82	22,52
	Customs duty	1969	0,10	1,13	0,70	0,43	61,42
	Btk 249. §	1971	1,50	1,81	1,69	0,10	5,91
	Other crimes against the people's economy	1969	0,98	1,26	1,21	0,11	9,09
	Btk 227–228, 237, 239, 245. §	1971	1,91	2,26	2,11	0,10	4,73
Crimes against the person	Manslaughter	1969	94,67	105,03	102,71	4,83	4,70
	Btk 253. § (1)–(3)	1971	85,69	94,47	93,27	4,43	4,75
	Intention to kill	1969	39,64	44,05	42,73	1,90	4,44
	Btk 253. § (1)–(2), 254. §	1971	39,79	43,66	42,66	1,70	4,11

	Specification of the crime		Min τ	Max τ	Med τ	σ	σ′
Crimes against the person	Manslaughter by negligence	1969	4,73	4,83	4,78	0,04	0,85
	Btk 253. § (4)	1971	1,96	1,97	1,96	0,00	0,21
	Manslaughter committed in the heat of passion	1969	43,14	46,57	45,92	1,65	3,58
	Btk 254. §	1971	33,50	35,63	34,76	0,88	2,54
	Procured abortion	1969	2,68	3,92	3,41	0,53	15,54
	Btk 256. §	1971	3,03	4,26	3,70	0,51	13,78
	Assault	1969	2,14	3,29	2,60	0,44	16,92
	Btk 257. § (1) – (2) l. (2), b) point	1971	2,49	4,65	3,28	0,84	25,60
	Grievous bodily harm	1969	3,82	4,26	4,01	0,13	3,24
	Btk 257. § (1), 2. (2) – (4).	1971	4,41	4,85	4,62	0,13	2,75
	Grievous bodily harm by negligence	1969	0,68	0,93	0,79	0,10	12,65
	Btk 257. § (1), 2., (5)	1971	2,12	2,60	2,30	0,16	6,95
	Endangering by failing to observe professional regulations	1969	1,42	2,18	2,00	0,29	14,50
	Btk 258. § (1)	1971	1,31	2,21	2,07	0,31	14,97
	Endangering by failing to observe professional regulations causing griecous bodily harm	1969	1,36	2,14	2,09	0,36	17,22
	Btk 258. § (2) a) point	1971	1,25	2,13	2,08	0,33	11,78
	Endangering by failing to observe professional regulations causing death	1969	13,22	14,04	13,91	0,41	2,91
	Btk 258. § (2) b) point	1971	13,54	14,50	14,36	0,47	3,29
	Endangering by failing to observe professional regulations wilfully	1969	9,67	10,64	10,44	0,46	4,43
	Btk 258. § (3)	1971	7,20	7,99	7,75	0,35	4,50
	Omission to lend assistance	1969	3,81	5,01	4,16	0,46	11,05
	Btk 259. §	1971	3,32	3,89	3,58	0,21	5,80
	Other crimes endangering life and health	1969	0,20	0,20	0,20	0,00	1,15
	Btk 255, 260. §	1971	0,80	0,80	0,80	–	–
	Slander	1969	0,67	1,85	1,75	0,05	2,85
	Btk 266. §	1971	–	0,76	0,35	0,37	105,03
	Libel	1969	0,42	0,95	0,88	0,21	23,86
	Btk 266. §	1971	1,02	1,70	1,16	0,25	21,15
	Other crimes against human freedom and dignity	1969	1,83	2,43	2,13	0,23	10,79
	Btk 261 – 268. §	1971	2,04	2,55	2,30	0,18	7,82

	Specification of the crime		Min τ	Max τ	Med τ	σ	σ'
Crimes against the family, youth and sexual morals	Crime against youth	1969	4,79	5,22	4,98	0,13	2,63
	Btk 274. §	1971	5,44	5,87	5,59	0,14	2,54
	Neglect of maintenance	1969	3,44	3,89	3,60	0,13	3,61
	Btk 275. §	1971	3,66	4,03	3,79	0,11	2,90
	Other crimes against the family and youth	1969	3,22	5,99	4,05	1,01	24,93
	Btk 271 – 273. §	1971	1,21	1,86	1,41	0,26	18,43
	Rape	1969	32,46	36,36	35,04	1,65	4,70
	Btk 276. §	1971	35,56	40,08	38,75	1,97	5,08
	Indecent assault	1969	16,36	17,90	17,30	0,61	3,54
	Btk 277. §	1971	18,01	19,79	19,31	0,80	4,16
	Corruption	1969	14,34	15,72	14,99	0,44	2,95
	Btk 280 – 281. §	1971	15,05	17,04	15,86	0,61	3,87
	Professional prostitution	1969	7,04	8,24	7,54	0,35	4,63
	Btk 283 – 285. §	1971	7,98	9,03	8,54	0,43	4,98
	Other crimes against sexual morals	1969	9,92	11,28	10,59	0,40	3,82
	Btk 278 – 279, 282, 286 – 288. §	1971	10,90	13,49	12,51	0,77	6,19
Crimes against social property	Theft	1969	7,98	9,65	8,49	0,50	5,94
	Btk 291, 295. §	1971	8,24	10,09	8,83	0,55	6,22
	Embezzlement	1969	6,07	6,90	6,39	0,24	3,83
	Btk 292, 295. §	1971	6,05	7,01	6,39	0,28	4,45
	Fraud	1969	7,44	8,51	7,94	0,30	3,81
	Btk 293, 295. §	1971	9,81	11,51	10,45	0,50	4,79
	Malversation	1969	1,63	2,08	2,02	0,19	9,42
	Btk 294, 295. §	1971	6,80	8,77	7,10	0,80	11,28
	Negligent management	1969	0,42	1,39	1,36	0,47	34,55
	Btk 298. § (1) – (2)	1971	1,77	2,37	2,20	0,22	10,00
	Robbery	1969	14,67	15,91	15,16	0,52	3,44
	Btk 299. §	1971	44,57	50,98	48,39	2,67	5,51
	Receiving goods unlawfully obtained	1969	2,64	2,87	2,77	0,07	2,49
	Btk 301 § (1), (3) – (4).	1971	2,74	2,93	2,85	0,06	2,27
	Wilful damage	1969	2,82	3,88	3,09	0,37	11,97
	Btk 302. §	1971	2,60	2,96	2,80	0,11	3,92
	Crimes of lesser importance	1969	0,56	1,65	1,41	0,43	30,49
	Btk 303. §	1971	0,47	1,77	1,48	0,42	28,37

	Specification of the crime		Min τ	Max τ	Med τ	σ	σ'
Crimes against social property	Omission to report a crime to the prejudice of social property	1969	–	2,05	1,54	0,80	51,94
	Btk 308. §	1971	–	1,96	1,48	0,72	48,64
	Other	1969	2,60	4,18	3,30	0,47	14,24
	Btk 297, 304. §, 1966. 16. tvr, 38. 39. §	1971	2,90	4,56	3,55	0,50	14,08
Crimes against property of persons	Theft	1969	10,57	12,49	11,25	0,57	5,06
	Btk 291, 296. §	1971	11,08	13,07	11,79	0,60	5,08
	Embezzlement	1969	7,33	9,20	8,11	0,52	6,44
	Btk 292, 296. §	1971	7,88	9,59	8,65	0,48	5,52
	Fraud	1969	11,31	13,35	12,08	0,62	5,12
	Btk 293, 296. §	1971	14,83	17,45	16,18	0,84	5,19
	Malversation	1969	–	–	–	–	–
	Btk 294, 296. §	1971	–	4,00	4,00	2,00	50,00
	Negligent management	1969	–	–	–	–	–
	Btk 298. (3)	1971	–	–	–	–	–
	Robbery	1969	33,90	38,69	36,87	1,93	5,24
	Btk 299. (1) – (3)	1971	34,04	39,06	37,29	2,10	5,63
	Blackmail	1969	10,14	11,13	10,61	0,40	3,78
	Btk 300.	1971	11,11	13,50	12,42	0,72	5,83
	Receiving goods unlawfully obtained	1969	3,41	4,02	3,66	0,18	4,91
	Btk 301. (1) – (2)	1971	4,97	6,25	5,39	0,41	7,59
	Wilful damage	1969	2,06	2,49	2,23	0,13	5,82
	Btk 302.	1971	2,83	4,34	3,53	0,52	14,73
	Crimes of lesser importance	1969	1,33	1,66	1,45	0,10	6,89
	Btk 303.	1971	1,71	2,35	2,13	0,28	13.14
	Other,	1969	3,24	4,71	3,93	0,49	10,94
	Btk 297, 304 – 307, 1966. tvr, 38. 39. §	1971	3,28	4,70	3,95	0,42	10,63

From the table 2. can see that the deviation among the values of the series of weights is not significant, at least at most of the crimes. At 71.1 percent of the series (in 116 cases) the standard deviation is less than 0.6 and at 25.1 percent (in 41 cases) it is less than 0.2. Only in 23 cases is the deviation greater than 1, and in only 10 cases does it exceed 2. Among these 10 cases only crimes of small frequency are to be found and they judged very specifically.(Table 2.)

The relative deviation coefficient σ' is less than 12 percent at 73.0 percent of the series of weights (in 119 cases), and it is even less than 3 per-

cent at 13.6 percent (in 23 cases). Only in 19 cases does the deviation coefficient exceed 24 percent, namely always in the case of crimes of small weight, where also the penalty is small, the medium of the weights is also small, and thus even if is small, its relative rate to the median may be rather great.

The following table 3 shows the distribution of the crimes by the standard deviation and relative deviation coefficient of the series of weights determining the wight of the crime.

Table 3

Crimes by the standard deviation and deviation coefficient of their weights

σ \ σ'	0,00–2,99	3,00–5,99	6,00–11,99	12,00–23,99	24,00	Total
0,00–0,19	18	10	12	1	–	41
0,20–0,39	2	14	7	12	2	37
0,40–0,59	2	16	8	7	5	38
0,60–0,99	1	10	4	3	6	24
1,00–	–	14	1	2	6	23
Total	23	64	32	25	19	163

The analysis of the series of weights

Experiencing rather small deviation among the individual series of weights – excepted a few crimes – the question has been raised, how are the values arranged within the series, and whether this situation of the values is characteristic for the crime given, or not.

Let us start form the models establishing the weights. Four-four weights were calculated from the same formula, changing only the upper limit of the summarization. Thus, 6 fours of figures belong to each crime, that is the 24 weights can be classified into 6 groups. If we choose such a quaternary, relating to its first value (gained by a summarizing between $1 \leqq i \leqq 13$), the second value ($1 \leqq i \leqq 17$) can be the same, more, or less than it, i. e. there are three possibilities. If the third value is related to the second one, again the 3 former possibilities exist, thus, for relating the first 3 weights to each other, $3^2 = 9$ possibilities can be imagined. Finally, the fourth value can be related to the third one again in 3 ways, i. e. when analysing a series of weights consisting of four weights, $3^3 = 27$ variatons can be imagined in the aspect of increase-decrease-stagnation. These 27 variations of the series of weights can be presented graphically, too (Fig.1), where the weights are marked with 0-circles, the increase with a rising-, the decrease with a falling-, the stagnation with a horizontal line (The figures at the type mark the serial number of the type.) From among the 27 possible types 9 do not occur at all, namely those marked on the graph

with 3, 6, 10, 16, 18, 22, 23, 24 and 27. Type 8 occurs with the greatest frequency. 165 (33.7 percent) from among the 489 quanternaries examined the frequency of the occurrance of the other types is the following:

Frequency of the occurence	Serial number of the type
87	17
75	7
42	13
35	11
12	5 and 20
11	9
8	1 and 26
7	15
6	4
5	12, 14 and 21
3	25
2	19
1	2

This grouping shows only the frequencies of the occurence of the curves of different type, but it does not enlighten how the types are linked to the type of the crime. The relation of the type of crime to the type of the curves has been first investigated quantitatively, later qualitatively, too.

In general, 6 quaternaries, i. e. 6 curves belong to each crime, exceptionally only 3, when the crime occurred only in one of the two years examined. The stability of the principles of imposing of punishment in the practice of judging a crime manifests itself if among the 6 or 3 resp. curves many belong to the same type. Analysing the crimes from this aspect one can see that in the case of 38 crimes all six curves are of the same type; in two cases when the crimes occurred only in one of the two years also all curves are of the same type. For further 26 crimes 3 – 3 curves are of the same type, for 4 crimes 5 similar and 1 different types were found. For two crimes 4:2, and for one 2:1 is the rate of the frequencies of the identical and different types of the curves. Among all crimes only 8 were found which had 3 different types of curves among the 6; their rate of occurrence was 3:2:1.

In the following we shall investigate which crimes do have curves showing stability and which are those in the system of weights at which several types of curves can be found.

In the following list on the first places are the crimes determined by an only type of curve, grouped by the type of curve. These are followed by crimes the system of weight of which includes two types of curves, and lastly there are the crimes with three curves.

Before presenting the list it should be noted that in some cases the presence of two or three curves does not mean a very heterogeneous system of weights either, as it may happen – and often it even happens – that

the two curves differ from each other in an only section, otherwise they cover each other. This observation led to the measurement of homogeneity among crimes of two and three curves.

Three stages of the curves were distinguished for the sake of measuring homogeneity. The deviation of the two curves within one stage can be 0, 1 or 2 units.

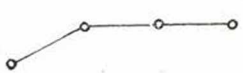
If the two stages cover each other 0
if a stage of increase-stagnation or stagnation-decrease cover each other 1
and if a stage of increase and one of decrease cover each other 2

units of deviation are taken. Relying upon this consideration the deviation of the line-pairs consisting of three stages can be maximum $2^3 = 8$ units. Expressed these values in percentage, the homogeneity of the curves can be characterized by the values of the following list:

Number of units of deviation	Homogeneity
0	100,0%
1	87,5%
2	75,0%
3	62,5%
4	50,0%
5	37,5%
6	25,0%
7	12,5%
8	0,0%

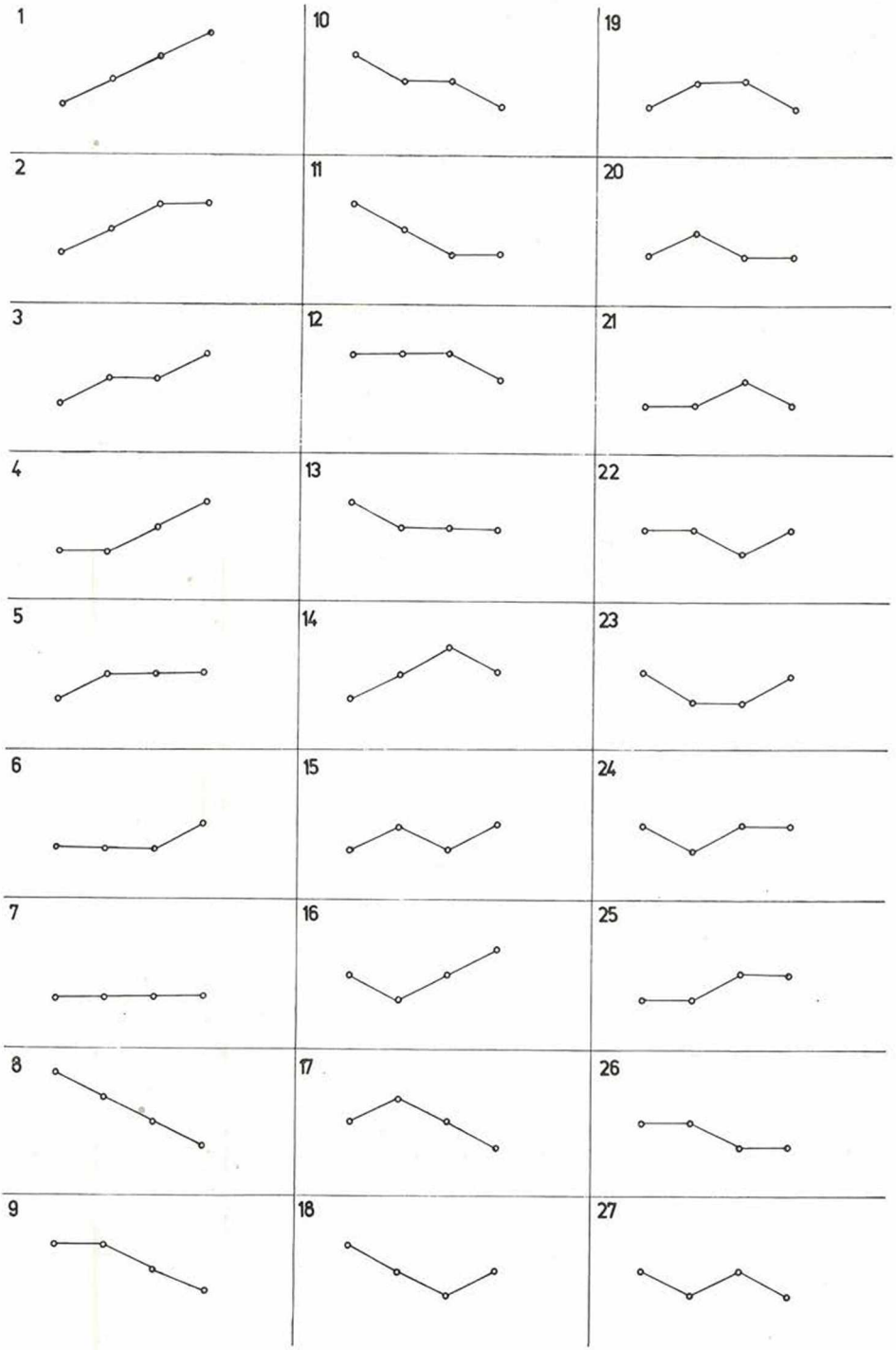
The following table 4 contains beside the types of curves and types of crimes the degree of the homogeneity of the types of curves, too.

Table 4.

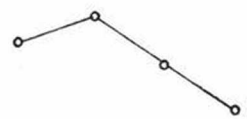
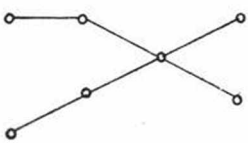
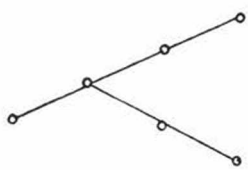
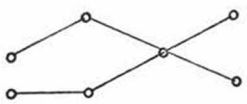
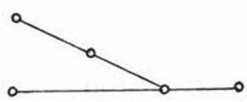
Type of the curve	Homogeneity	Specification of the crime
	100%	– Endangering by failing to observe professional regulations causing grievous bodily harm. Btk 258. § (2) a) point. – Malversation against property of persons. Btk 294. 296. §
	100%	– Conspiracy, sedition Btk 116 – 122. § – Treason, aiding the eneðmy espionage. Btk 129 – 131. § – Other crimes against the state. Btk 132 – 133. § – Crimes against peace and humanity. Btk 135 – 141. §

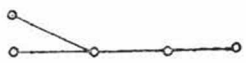
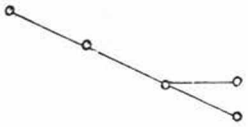
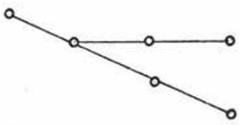
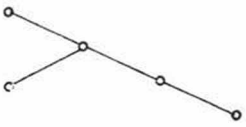
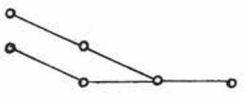
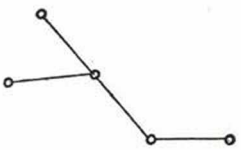
Types of the series of weights

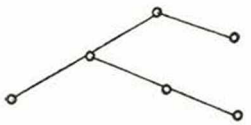
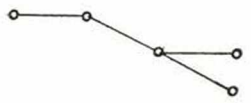
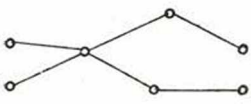
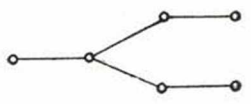
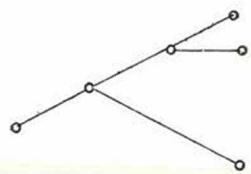
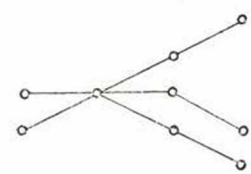
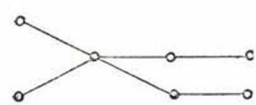
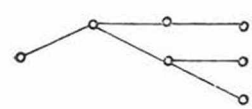
Fig. 1.

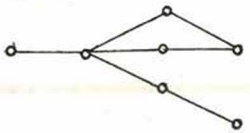
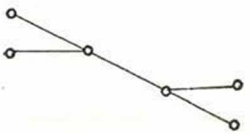
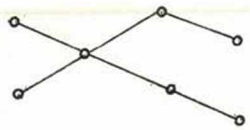
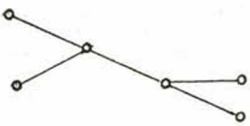


Type of the curve	Homogeneity	Specification of the crime
		– Breach of secrecy in respect of state secrets and secrets of service. Btk 160 – 162. §
		– Crimes relating to the quality of industrial products. Btk 230 – 234. §
		– Money forging. Btk 241 – 243. §
		– Manslaughter. Btk 253. § (1) – (3)
		– Manslaughter by negligence. Btk 253. § (4)
		– Manslaughter committed in the heat of passion. Btk 254. §
		– Endangering by failing to observe professional regulations wilfully. Btk 258. § (3)
		– Other crimes endangering life and health. Btk 255. 260. §
		– Robbery against social property. Btk 299. §
	100%	– Violence against an official person. Btk 155. §
		– False accusation, misleading an authority. Btk 172 – 175. §
		– Other crimes against state administration and administration of justice. Btk 143, 185 – 186, 188 – 189. §
		– Causing public danger, disturbing the operation of works of public interest. Btk 190 – 191. §
		– Hooliganism. Btk 219. §
		– Forging of official documents Btk 220 – 221. §
		– Other crimes against public security and public order Btk 196 – 202, 205, 207 – 213, 215 – 216. §
		– Bribery Btk 235. §
		– Assault Btk 257. § (1) 1, (2) b) point.
		– Grievous bodily harm Btk 257. § 1() 2, (2) – (4).
		– Omission to lend assistance Btk 259. §
		– Other crimes against sexual morals Btk 278 – 279, 282, 286 – 288. §
		– Embezzlement against social property Btk 292, 295. §
		– Fraud against social property Btk 293, 295. §
		– Other crimes against social property Btk 297, 304, 1966. 16. tvr. 38, 39. §
		– Theft against property of persons Btk 291, 296. §
		– Fraud against property of persons Btk 293, 296. §

Type of the curve	Homogeneity	Specification of the crime
		– Embezzlement against property of persons Btk 292, 296. § – Receiving goods unlawfully obtained against property of persons Btk 301 § (1) – (2) – Other crimes against property of persons Btk 297, 304 – 307, 1966. 16. tvr. 38, 39. §
	100%	– Incorrigible unwillingness to work Btk 214. §
	100%	– Misuse of explosives, blasting agents, fire arms or ammunition Btk 195. § – Rape Btk 276. § – Corruption Btk 280 – 281. §
	100%	– Bribery Btk 151 – 152. § – False testimony, subornation of witnesses, concealment of an exculpating circumstance Btk 176 – 179, 182 – 183. § – Abetment Btk 184. § – Endangering by failing to observe professional regulations Btk 258. § (1) – Other crimes against human freedom and dignity Btk 261 – 265, 268. § – Crimes of lesser importance against social property Btk 303. §
	12,5%	– Tax fraud Btk 248. §
	25,0%	– Customs duty crimes Btk 249. §
	37,5%	– Grievous bodily harm by negligence Btk 257. § (1), 2, (5)
	62,5%	– Incitement Btk 127 – 128. §

Type of the curve	Homogeneity	Specification of the crime
	87,5%	– Trading in influence Btk 153. § – Endangering by failing to observe professional regulations causing death Btk 258. § (2) b) point. – Indecent assault Btk 277. §
	87,5%	– Misuse of a document Btk 223. § – Procured abortion Btk 256. §
	87,5%	– Unauthorized crossing of the frontier, smuggling people Btk 203 – 204, 206. § – Crime against youth Btk 274. § – Neglect of maintenance Btk 275. § – Theft against social property Btk 291, 295. §
	62,5%	– Intention to kill Btk 253. § (1) – (2), 254. §
	75,0%	– Insulting an authority or official person Btk 158. § – Speculation, profiteering Btk 236, 238. § – Other crimes against the family and youth Btk 271 – 273. § – Wilful damage against social property Btk 302. § – Wilful damage against property of persons Btk 302. § – Crimes of lesser importance against property of persons Btk 303. §
	75,0%	– Other crimes in office Btk 144 – 148. § – Refusal to return to homeland Btk 205. § – Professional prostitution Btk 283 – 285. §
	87,5%	– Demanding or accepting an unlawful advantage Btk 149 – 150. §
	75,0%	– Robbery against property of persons Btk 299. § (1) – (3)

Type of the curve	Homogeneity	Specification of the crime
	75,0%	– Crimes relating to public supplies Btk 240. §
	50,0%	– Forging of private documents Btk 222. §
	75,0%	– Driving a vehicle when drunk Btk 194. § – Other crimes against the people's economy Btk 227 – 228, 237, 239, 245. §
	87,5%	– Omission to report a crime to the prejudice of social property Btk 308. §
	87,5%	– Offence against the community, spreading of disquieting rumours Btk 217 – 218. §
	50,0%	– Slander Btk 266. §
	75,0%	– Infringement of duties in connection with the economy Btk 224. §
	25,0%	– Negligent management against social property Btk 298. § (1) – (2)
	37,5%	– Misleading the organs of the people s economy, crime infringing discipline in investments and finance Btk 226, 229. §
	50,0%	– Malversation against social property Btk 294, 295. §
	62,5%	– Libel Btk 266. §

Type of the curve	Homogeneity	Specification of the crime
	50,0%	– Blackmail against property of persons Btk 300. §
	75,0%	– Crime against the safety of traffic Btk 192 – 193. §
	25,0%	– Crimes violating foreign exchange control Btk 247. §
	62,5%	– Receiving goods unlawfully obtained against social property Btk 301. § (1), (3) – (4)

Evidently, the homogeneity of the types with one curve is 100 percent, these are mainly the most stable and the gravest crimes. Among types with two curves there are also types of great homogeneity, thus e.g. in the case of endangering life and health, causing death, by failing to observe professional regulations, indecent assault, procured abortion and some other crimes, the homogeneity is 87,5 percent.

Summarizing by the degree of homogeneity, from among the 86 crimes

45 show a homogeneity of	100 percent,
27 show a homogeneity of	75 – 99 percent,
8 show a homogeneity of	50 – 74 percent,
6 show a homogeneity less than	49 percent,

indicating that the majority of the crimes is well characterized by the curves of their system of weights.

Finally, for the sake of completeness, I examined how the curves of the system of weights of the crimes are related to the deviation indices of

Table 5

Average homogeneity by deviation and deviation coefficient

σ \ σ'	0,00 – 2,99	3,00 – 5,99	6,00 – 11,99	12,00 – 23,99	24,00 –
0,00 – 0,19	86,8	73,8	79,2	37,5	–
0,20 – 0,39	100,0	96,4	80,4	79,2	43,7
0,40 – 0,59	93,8	90,6	96,8	92,8	52,5
0,60 – 0,99	100,0	85 0	78.1	66,7	68,7
1,00 –	–	89,3	100,0	87,5	89,6

the series of weights. The following table 5 presents the average of the degree of homogeneity of the crimes classified by their deviation and deviation coefficient.

From the table one can read that the deviation indices and the degree of concentration show a firm negative correlation, the greater are the deviation indices the smaller are the rates of concentration.

Criminality indices for the years 1969 – 1971

As the weights of crimes determining their significance and social danger are available for the years 1969 and 1971 – even in 12 variations – there is no obstacle of determining the indices of the 1971 data as reference period to those of 1969 as basis period. For the above periods both the criminality indices and the volume indices of criminality as well as the index of penal-policy can be calculated; and the two latter ones can be weighted even with the weights of either period. Let A_{kt} mean the number of convicts for crime k in the year t, where t can be 1969 or 1971, and A_{kt} means at each value of k and t the earlier

$$\sum_{i=1}^{21} (a_i + b_i)$$

further let τ_{kt} mean anyone of the weights of crime k in the year t.

Using these symbols the criminality index of the year 1971 related to 1969 will be:

$$I_b = \frac{\sum_k \tau_{k,\,71}\, A_{k,\,71}}{\sum_k \tau_{k,\,69}\, A_{k,\,69}}$$

If only the change of volume of criminality should be measured and the results are wanted to be made independent of the changes of the weights, then the same system of weights should be used for both years, namely either that of the accounting period:

$$I_{v,\,71} = \frac{\sum_k \tau_{k,\,71}\, A_{k,\,71}}{\sum_k \tau_{k,\,71}\, A_{k,\,69}}$$

or the system of weights for the basis period:

$$I_{v,\,69} = \frac{\sum_k \tau_{k,\,69}\, A_{k,\,71}}{\sum_k \tau_{k,\,69}\, A_{k,\,69}}$$

Finally, if we want to indicate the changes of the judicial practice with the index, then we have to take the number of condemned as stable in both

periods. This penal-political index weighted with the number of the convicts of the reference period will be

$$I_{p,\,71}=\frac{\sum\limits_{k}\tau_{k,\,71}\,A_{k,\,71}}{\sum\limits_{k}\tau_{k,\,69}\,A_{k,\,71}}$$

and when weighting with the number of convicts of the basis period it will be

$$I_{p,\,69}=\frac{\sum\limits_{k}\tau_{k,\,71}\,A_{k,\,69}}{\sum\limits_{k}\tau_{k,\,69}\,A_{k,\,69}}$$

Among the five kinds of indices the two well-known interrelations exist:

$$I_b=I_{v,\,71}\cdot I_{p,\,69}$$

$$I_b=I_{v,\,69}\cdot I_{p,\,71}.$$

All the five indices can be calculated with either of the 12 τ values produced earlier. The following table 6 contains the criminality – volume and penal-policy indices calculated with the 12 kinds of values.

Table 6

Indices of criminality, volume and penal-policy

Type of weight		I_b	$I_{v,\,71}$	$I_{p,\,69}$	$I_{v,\,69}$	$I_{p,\,71}$
τ_a	i < 13	117,54	108,33	108,50	107,55	109,29
	i < 17	117,64	108,62	108,30	107,83	109,10
	i < 19	117,19	108,03	108,48	107,27	109,24
	i < 21	117,37	108,08	108,60	107,31	109,38
τ_b	i < 13	118,51	108,42	109,31	107,38	110,37
	i < 17	118,45	108,66	100,01	107,70	109,98
	i < 19	117,93	108,05	109,15	107,16	110,05
	i < 21	118,08	108,11	109,22	107,24	110,10
τ_c	i < 13	117,96	108,31	108,91	107,32	109,91
	i ≤ 17	117,94	108,55	108,65	107,62	109,59
	i < 19	117,96	107,96	108,80	107,09	109,68
	i < 21	117,63	108,01	108,91	107,17	109,77

From the table one can read that both the volume of criminality and the weight of the penalties increased during the period given, according to the evidence of the values of I_v and I_p, namely the volume by 7 – 8 percent and the weight of the crimes by 8 – 10 percent. In the same time I_b shows an increase of 17 – 18 percent.

I deem that finding to be more significant that considering any one of the 5 indices the calculations performed with the 12 kinds of τ values cause hardly any difference in the values of the indices; in all cases the difference is 1 percent or less indicating that anyone of the 12 values may be regarded as the weight of the crime, the value of the index will be essentially the same.

Index-series concerning the validly condemned

The weights determined earlier can be used not only for calculating indices regarding two years but also for analysing longer time series of criminality if we content ourselves with applying unchanged weights. In this case, naturally, only the volume of criminality can be measured and the calculation of the general criminality index as well as that of penal-policy should be abandoned.

As it is obvious from the above said among the 24 kinds of τ values and among the indices calculated with them hardly any difference can be observed, therefore it is not necessary to perform the investigations in so many variations.

Further calculations have been performed with three weights for each crime, i. e. with a minimal, with a maximal and with a median weight. The determination of these has been done by the following way: the arithmetical mean of the minimal τ values for the years 1969 and 1971 has been calculated; and the ten-folds of this value has been considered as the minimal value of the weights. (The multiplication by 10 was applied for the sake of eliminating the decimals – and where it was necessary, a rounding was made – however, the multiplication by 10 has no significance in calculating indices, as it refers both to the numerator and the denominator.) The calculation of the median and maximal weights has been performed in the same way.

For calculating the index-series the weights of the years 1969 – 1971 have been applied as constant weights. The use of constant weights raised problems of application, namely the official court statistics presents the number of convicts in different grouping in the years other than 1969 and 1971. The nomenclature of crimes became more detailed during one decade, and especially the year 1964 brought many changes in the nomenclature – obviously as the consequence of the new Penal Code coming into force. Thus the time series of certain crimes are available only from 1964, other ones from 1960, on. Some kinds of crimes are reported earlier together and only from 1964 on detailed time series are available. In such cases estimations were performed using weighted arithmetical means.

Estimations were to be used also in such cases when a crime did not occur in 1969 or 1971 either, i. e. no calculated weight was available. In such cases, if an occurrence of the crime could be found in a longer time series a weight of an other crime with a similar penalty prescribed in the Penal Code was chosen.

The application of this method is justified also by the consideration that if a crime did not occur in 1969 and 1971, it is probable that it occurred with a small frequency in other years, too, and thus the estimated value of the weight will not cause any distortion in the index.

Having used the weights discussed above three series of chain indices and three series of basis indices have been compiled with the minimal the maximal and the median weights. The aggregates of the chain-index-series are expressed in the percentage of the aggregate of the preceding year. In calculating the basis-index-series for the years 1961 – 1963 the year 1960 was taken as basis, while that for the years 1965 – 1969 the year of the enactment of the Penal Code: 1964. These series are presented in table 7.

Table 7

Index series regarding the condemned

Year	Chain-index-series			Basis-index-series (1960 resp. 1964 = 100 %)		
	calculated with weight					
	median	minimum	maximum	median	minimum	maximum
1960	–	–	–	100,0	100,0	100,0
1961	110,0	110,4	110,4	110,0	110,4	110,4
1962	108,2	108,0	108,2	119,0	119,2	119,5
1963	68,1	68,0	67,9	81,1	81,0	81,2
1964	136,3	135,8	136,5	100,0	100,0	100,0
1965	117,4	116,8	117,8	117,4	116,8	117,8
1966	109,0	109,5	109,0	127,9	127,9	128,3
1967	101,5	101,9	101,4	129,9	130,3	130,1
1968	81,6	82,0	81,4	106,0	106,8	105,9
1969	93,2	92,4	93,3	98,8	98,6	98,8
1970	91,4	91,6	90,8	90,3	90,3	89,8
1971	116,2	115,2	116,9	108,3	104,1	104,9

The series of indices show the increase of criminality in the periods when the changes of law do not distort the time series, i. e. in 1960 – 1962 and 1964 – 1967. The great decrease in 1963 can be explained partly by the amnesty in 1963, partly be the enactment of the Penal Code, in consequence of which a significant part of the lawsuits were passing through to the year 1964. The illusory decrease in 1968 and 1969 is the consequence of the legal order No 16 of 1966 and the Law of 1968 directing the legal process to the scope of petty offences in the case of crimes against property causing a damage of Ft 200 – 500.

Index series regarding perpetrators

In the above said the system of weights – based on the sentences of courts – were applied only for calculating indices from the time series of

court statistics concerning the condemned. The idea may be raised whether the same system of weights may be applied for data of statistics of police and attorney's office – e. g. for time series of perpetrators – or not. Two questions should be answered in this matter, namely

1) may the same weights be applied or are they to be reduced proportionately?
2) may the two nomenclatures of crimes be parallelled, or not?

Ad 1) The multitude of perpetrators included in police-attorney's statistics is significantly greater than that of the validly condemned, and it cannot be stated that the weight of the crimes committed by the perpetrators would be the same as that of the same crimes committed by the validly condemned. Surely, those committers who will not become convicts are mainly such persons whose crimes are not so dangerous for the society that the penal proceedings should be necessarily conducted against them, or the act of accusing does not happen because the attorney verifies that the action had been not a crime, or if still so, it had been committed not by the charged. From all these it follows that the average weight of the crimes of the perpetrators is smaller than the average weight of the condemned. However, if all weights would be reduced by a proportion factor, both the numerator and the denominator of the index could be devided by this factor, thus the value of the index would be the same as that calculated with the original system of weights.

Ad 2) As it is known criminality data are not presented by an identical nomenclature in police – attorney's statistics and in court statistics. In harmonizing the two kinds of nomenclatures for the present study it was necessary to adopt the nomenclature of the courts, as the construction of the system of weights had been made, necessarily, on the basis of the court's nomenclature. As the nomenclature of police and attorney's office is more detailed, the harmonization could be done by simple grouping and combination.

Table 8

Index series regarding perpetrators

Year	Chain index series			Basis index series (1965 = 100%)		
	calculated with weight					
	median	minimum	maximum	median	minimum	maximum
1965	–	–	–	100,0	100,0	100,0
1966	103,5	103,8	103,1	103,5	103,8	103,1
1967	88,2	88,3	88,2	91,3	91,7	91,0
1968	88,6	88,5	88,5	80,9	81,2	80,5
1969	102,6	102,2	102,4	83,0	82,9	82,4
1970	92,5	92,5	92,4	76,8	76,7	76,2
1971	113,3	113,1	113,4	87,0	86,7	86,4
1972	97,0	97,5	97,1	84,4	84,6	83,8

Taking the above said into consideration the index series for perpetrators were calculated with 3 – 3 stable weights. The series of chain indices make the comparison possible for the period between 1966 and 1972 with the preceding years, the basis index series express the aggregates for the period between 1966 – 1972 in the percentage of the aggregate of 1965.

The basis index series and the chain index series are shown in table 8.

The decrease in the basis index series can be explained partly by the enactment of the Law I of 1968, partly by the legal order No 7 of 1970 concerning general pardon.

Combined series for police-, attorney's – and court indices

Finally, I utilized the indices for comparing the criminal-statistical data of the police and attroney's office with those of the courts. The comparison refers to the data of the same year, in spite of the fact known that the data of the same year in the two reference systems do not iclude the same perpetrators and convicts, as – due to the different observation period – the two time series are deffered in date.

Combinative indices were constructed by placing the aggregates of the condemned in the numerator and that of the perpetrators of the same year in the denominator. Table 9 contains the combinative index series. The values of these indices show a significant stability – significantly greater than the index series of the police-attorney's statistics or those of the court statistics either. This fact indicates that the comparison performed between the data of the same year does not cause significant distortion.

Table 9

Combinative index series concerning perpetrators – convicts

Year	Combined index series calculated with		
	Median weight	Minimal weight	Maximal weight
1965	60,0	59,5	59,8
1966	63,1	62,7	63,2
1967	72,7	72,4	72,7
1968	67,0	67,0	66,8
1969	60,8	60,6	60,9
1970	60,1	60,0	59,9
1971	61,7	61,2	61,7

The combinative time series indicate that the changes in the volume of criminality have relatively small influence on the "falling off" occurring in certain phases of the penal proceedings. About 60 percent of perpetrators reported in police-attorney's statistics become validly condem-

med, and this rate is rather constant throughout the 7 years examined. While the indices of the basis index series calculated from the court-statistics show a fluctuation of about 40 percent (table 7), those of the police-attorney's statistics nearly 30 percent (table 8) in the same seven years, the fluctuation in the combined index series does not exceed 13 percent, in an only year it reaches 13 percent, the year 1967 produced an outstanding value, in all other years a fluctuation of hardly 7 percent can be observed. The outstanding value of 1967 can be explained by the fact that the legal order No 16 of 1966 begins to make its influence felt already in 1967, which legal regulation directed the crimes against property causing a damage of Ft 200 – 500 into the scope of petty offences and also it created the institution of the "reprimand" as one way of the refusal of fact-finding investigation, and those rebuked are not included in the official criminal statistics. In consequence of this the basis indices of 1967 are values of about 91 – 92 percent. On the contrary, in court statistics for 1967 basis indices are about 129 – 131 percent and the virtual decresse of criminality can be observed only after the enactment of Law I. of 1968; in 1968 the basis index is still 105 – 107 percent and for 1969 it decreases already to 98 – 99 percent.

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[6] See: above, the same as 5.

INDICES DE LA CRIMINALITÉ

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RÉSUMÉ

L'étude a pour but d'élaborer un système statistique mesurant en dehors du changement du volume de la criminalité le danger des actes commis pour la société et le changement de la politique criminelle.

Pour la mesure de la criminalité l'auteur emploie les trois types fondamentaux suivants:

I_b indice de la criminalité
I_v indice de volume
I_p indice de la politique criminelle.

Le calcul de l'index a pour base de former un système de poids appliqué aux diverses infractions. L'index n'est destiné à mesurer entièrement la criminalité que si les divers poids caractérisent bien les infractions individuelles en exprimant la mesure du préjudice ou de la lésion causés par celles-ci, c'est-à-dire que si les poids sont en proportion avec le danger des infractions commises pour la société.

Au moyen de 3 types de poids, de 4 sortes de totalisation l'auteur a prévu 12 sortes de poids pour chaque infraction et 24 poids en calculant les données de 2 ans.

L'auteur examine la dispersion des sortes de poids appliqués à chacune des infractions en prenant en considération de un an te en se servant des index de dispersion absolue et relative.

A la suite de la mesure de la dispersion l'auteur examine comment les valeurs des 4 sortes de poids acquises au moyen de quelques formules se rapportent les unes aux autres à l'égard de l'augmentation, de la diminution ou de la stagnation.

En conclusion l'étude traite de la production des index ou bien des séries d'index.

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ИНДЕКСЫ ПРЕСТУПНОСТИ

(РЕСЮМЕ)

Предметом научной работы является разработка такого статистического метода, который кроме изменения объема преступности измеряет и общественную опасность совершенных деяний а также изменения уголовной политики.

Для измерения преступности автор применяет следующие типы индекса:

$I_п$ индекс преступности
$I_о$ индекс объема
$I_{уп}$ индекс уголовной политики

Основой вычисления индекса является создание весовой системы при отдельных преступлениях. Индекс способен измерить преступность в полной ее мере только в том случае, если отдельные весы правильно характеризуют индивидуальные преступления, выражают величину оказанного ими вреда, т. е. если весы пропорциональны общественной опасности совершенных преступлений.

Посредством трех весовых типов и четырех лимитов суммирования автор направил к каждому преступлению 12 весов, а учитывая данные 2 лет, 24 веса.

Автор рассматривает дисперсию 12 весов, учитывая один год, при помощи абсолютных и релативных показателей дисперсии.

После измерения дисперсии рассматривает, как относятся друг к другу стоимости четырех весов, установленных в отдельных формулах с точки зрения их повышения, понижения и стагнации.

В конце работы устанавливает индексы и ряды индексов.